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RECENT RESULTS OF THERMAL GRADIENT LAYERING EXPERIMENTS†

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Advanced inertial confinement fusion targets require uniform condensed cryogenic hydrogen fuel layers with inner surface smoothness as low as 1000 Å rms for some designs. For a liquid layer stabilized against gravity, surface tension would provide this surface smoothness. Advanced targets have diameters of 1 to 2 mm, with fuel layers up to 100 μm thick. Current experiments are being conducted on capsules in this size range. Liquid oscillations as well as stable liquid surface configurations have been observed. We will report on our progress towards creating stable uniform liquid layers.

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